

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application.

LISTING OF CLAIMS:

1. (Currently amended) A preamble for a wireless communications system, the preamble comprising a sequence wherein the sequence comprises a concatenation of a first set of sub-sequences, with each sub-sequence containing more than one ~~a specified number of~~ zeroes, and wherein each sub-sequence can differ depending upon its position in the preamble.

2. (Currently amended) The preamble of claim 1, wherein the sub-sequences ~~are~~may be specified in the time domain.

3. (Currently amended) The preamble of claim 1 further comprising a second sequence wherein the second sequence comprises a concatenation of a second set of sub-sequences, wherein the second set of sub-sequences ~~can~~ differ from the first set of sub-sequences.

4. (Currently amended) A preamble for a wireless communications system, the preamble comprising:

a sequence wherein the sequence comprises a concatenation of a first set of sub-sequences, with each sub-sequence containing a specified number of zeroes, and wherein each sub-sequence can differ depending upon its position in the preamble; and

a second sequence wherein the second sequence comprises a concatenation of a second set of sub-sequences, wherein the second set of sub-sequences differ from the first set of sub-

sequences The preamble of claim 3, wherein the second sequence comprises a concatenation of multiple copies of a frequency domain sequence.

5. (Original) The preamble of claim 4, wherein the frequency domain sequence is converted into a time domain sequence prior to use in creating the second sequence.

6. (Original) The preamble of claim 5, wherein the second sequence comprises six (6) copies of the time domain sequence version of the frequency domain sequence.

7. (Currently amended) The preamble of claim 4, wherein the frequency domain sequence is specifieds Tone Number and Value as follows:

Tone Number	Value	Tone Number	Value	Tone Number	Value	Tone Number	Value
-56	$(1-j)/\sqrt{2}$	-28	$(1-j)/\sqrt{2}$	1	$(1+j)/\sqrt{2}$	29	$(1+j)/\sqrt{2}$
-55	$(-1+j)/\sqrt{2}$	-27	$(1-j)/\sqrt{2}$	2	$-(1+j)/\sqrt{2}$	30	$-(1+j)/\sqrt{2}$
-54	$(-1+j)/\sqrt{2}$	-26	$(-1+j)/\sqrt{2}$	3	$(1+j)/\sqrt{2}$	31	$-(1+j)/\sqrt{2}$
-53	$(1-j)/\sqrt{2}$	-25	$(-1+j)/\sqrt{2}$	4	$-(1+j)/\sqrt{2}$	32	$(1+j)/\sqrt{2}$
-52	$(1-j)/\sqrt{2}$	-24	$(-1+j)/\sqrt{2}$	5	$-(1+j)/\sqrt{2}$	33	$-(1+j)/\sqrt{2}$
-51	$(1-j)/\sqrt{2}$	-23	$(1-j)/\sqrt{2}$	6	$-(1+j)/\sqrt{2}$	34	$-(1+j)/\sqrt{2}$
-50	$(-1+j)/\sqrt{2}$	-22	$(-1+j)/\sqrt{2}$	7	$-(1+j)/\sqrt{2}$	35	$-(1+j)/\sqrt{2}$
-49	$(1-j)/\sqrt{2}$	-21	$(-1+j)/\sqrt{2}$	8	$-(1+j)/\sqrt{2}$	36	$(1+j)/\sqrt{2}$
-48	$(-1+j)/\sqrt{2}$	-20	$(1-j)/\sqrt{2}$	9	$(1+j)/\sqrt{2}$	37	$-(1+j)/\sqrt{2}$
-47	$(-1+j)/\sqrt{2}$	-19	$(-1+j)/\sqrt{2}$	10	$(1+j)/\sqrt{2}$	38	$(1+j)/\sqrt{2}$
-46	$(-1+j)/\sqrt{2}$	-18	$(-1+j)/\sqrt{2}$	11	$(1+j)/\sqrt{2}$	39	$-(1+j)/\sqrt{2}$
-45	$(1-j)/\sqrt{2}$	-17	$(-1+j)/\sqrt{2}$	12	$-(1+j)/\sqrt{2}$	40	$-(1+j)/\sqrt{2}$
-44	$(-1+j)/\sqrt{2}$	-16	$(-1+j)/\sqrt{2}$	13	$(1+j)/\sqrt{2}$	41	$-(1+j)/\sqrt{2}$
-43	$(-1+j)/\sqrt{2}$	-15	$(1-j)/\sqrt{2}$	14	$-(1+j)/\sqrt{2}$	42	$-(1+j)/\sqrt{2}$
-42	$(-1+j)/\sqrt{2}$	-14	$(-1+j)/\sqrt{2}$	15	$(1+j)/\sqrt{2}$	43	$-(1+j)/\sqrt{2}$
-41	$(-1+j)/\sqrt{2}$	-13	$(1-j)/\sqrt{2}$	16	$-(1+j)/\sqrt{2}$	44	$-(1+j)/\sqrt{2}$
-40	$(-1+j)/\sqrt{2}$	-12	$(-1+j)/\sqrt{2}$	17	$-(1+j)/\sqrt{2}$	45	$(1+j)/\sqrt{2}$

-39	$(-1+j)/\sqrt{2}$	-11	$(1-j)/\sqrt{2}$	18	$-(1+j)/\sqrt{2}$	46	$-(1+j)/\sqrt{2}$
-38	$(1-j)/\sqrt{2}$	-10	$(1-j)/\sqrt{2}$	19	$-(1+j)/\sqrt{2}$	47	$-(1+j)/\sqrt{2}$
-37	$(-1+j)/\sqrt{2}$	-9	$(1-j)/\sqrt{2}$	20	$(1+j)/\sqrt{2}$	48	$-(1+j)/\sqrt{2}$
-36	$(1-j)/\sqrt{2}$	-8	$(-1+j)/\sqrt{2}$	21	$-(1+j)/\sqrt{2}$	49	$(1+j)/\sqrt{2}$
-35	$(-1+j)/\sqrt{2}$	-7	$(-1+j)/\sqrt{2}$	22	$-(1+j)/\sqrt{2}$	50	$-(1+j)/\sqrt{2}$
-34	$(-1+j)/\sqrt{2}$	-6	$(-1+j)/\sqrt{2}$	23	$(1+j)/\sqrt{2}$	51	$(1+j)/\sqrt{2}$
-33	$(-1+j)/\sqrt{2}$	-5	$(-1+j)/\sqrt{2}$	24	$-(1+j)/\sqrt{2}$	52	$(1+j)/\sqrt{2}$
-32	$(1-j)/\sqrt{2}$	-4	$(-1+j)/\sqrt{2}$	25	$-(1+j)/\sqrt{2}$	53	$(1+j)/\sqrt{2}$
-31	$(-1+j)/\sqrt{2}$	-3	$(1-j)/\sqrt{2}$	26	$-(1+j)/\sqrt{2}$	54	$-(1+j)/\sqrt{2}$
-30	$(-1+j)/\sqrt{2}$	-2	$(-1+j)/\sqrt{2}$	27	$(1+j)/\sqrt{2}$	55	$-(1+j)/\sqrt{2}$
-29	$(1-j)/\sqrt{2}$	-1	$(1-j)/\sqrt{2}$	28	$(1+j)/\sqrt{2}$	56	$(1+j)/\sqrt{2}$

8. (Currently amended) The preamble of claim 4, wherein the frequency domain sequence is specifieds Tone Number and Value as follows:

Tone Number	Value	Tone Number	Value	Tone Number	Value	Tone Number	Value
-56	1	-28	1	1	1	29	1
-55	-1	-27	-1	2	1	30	1
-54	-1	-26	1	3	1	31	1
-53	1	-25	1	4	1	32	1
-52	-1	-24	1	5	1	33	-1
-51	-1	-23	-1	6	-1	34	-1
-50	1	-22	1	7	-1	35	-1
-49	1	-21	-1	8	1	36	1
-48	-1	-20	1	9	1	37	-1
-47	1	-19	-1	10	1	38	-1
-46	-1	-18	-1	11	-1	39	-1
-45	-1	-17	1	12	1	40	1
-44	-1	-16	-1	13	1	41	1
-43	1	-15	-1	14	-1	42	-1
-42	-1	-14	-1	15	-1	43	1
-41	1	-13	1	16	-1	44	-1
-40	1	-12	1	17	1	45	-1
-39	-1	-11	-1	18	-1	46	-1
-38	-1	-10	1	19	-1	47	1
-37	-1	-9	1	20	1	48	-1
-36	1	-8	1	21	-1	49	1

-35	-1	-7	-1	22	1	50	1
-34	-1	-6	-1	23	-1	51	-1
-33	-1	-5	1	24	1	52	-1
-32	1	-4	1	25	1	53	1
-31	1	-3	1	26	1	54	-1
-30	1	-2	1	27	-1	55	-1
-29	1	-1	1	28	1	56	1

9. (Original) The preamble of claim 1, wherein the first sequence comprises:
a third sequence wherein the third sequence comprises a concatenation of multiple copies of a first sub-sequence; and
a fourth sequence wherein the fourth sequence comprises a concatenation of multiple copies of a fifth sequence comprising 180-degree rotations of each member of the first sub-sequence.
10. (Original) The preamble of claim 9, wherein the first sub-sequence is a hierarchical sequence.
11. (Original) The preamble of claim 10, wherein the first sub-sequence is created by spreading a first hierarchical sequence with a second hierarchical sequence, wherein the two hierarchical sequences are shorter than the first sub-sequence.
12. (Original) The preamble of claim 11, wherein the first hierarchical sequence is a sequence selected from:

Sequence																
#1	1	1	1	1	-1	-1	1	1	-1	-1	1	-1	1	-1	1	1
#2	1	-1	-1	-1	-1	-1	1	-1	1	-1	-1	1	1	-1	-1	1
#3	1	1	-1	-1	-1	1	-1	-1	-1	1	-1	-1	1	-1	1	1
#4	1	-1	-1	1	-1	1	-1	-1	1	1	-1	-1	-1	-1	-1	1

13. (Original) The preamble of claim 11, wherein the second hierarchical sequence is a sequence selected from:

Sequence								
#1	1	-1	-1	-1	1	1	-1	1
#2	1	-1	1	1	-1	-1	-1	1
#3	1	1	-1	1	1	-1	-1	-1
#4	1	1	1	-1	-1	1	-1	-1

14. (Currently amended) The preamble of claim 11, wherein the time domain sequence is specifieds Sequence Element and Value as follows:

Sequence Element	Value	Sequence Element	Value	Sequence Element	Value	Sequence Element	Value
C ₀	1	C ₃₂	-1	C ₆₄	-1	C ₉₆	1
C ₁	-1	C ₃₃	1	C ₆₅	1	C ₉₇	-1
C ₂	-1	C ₃₄	1	C ₆₆	1	C ₉₈	-1
C ₃	-1	C ₃₅	1	C ₆₇	1	C ₉₉	-1
C ₄	1	C ₃₆	-1	C ₆₈	-1	C ₁₀₀	1
C ₅	1	C ₃₇	-1	C ₆₉	-1	C ₁₀₁	1
C ₆	-1	C ₃₈	1	C ₇₀	1	C ₁₀₂	-1
C ₇	1	C ₃₉	-1	C ₇₁	-1	C ₁₀₃	1
C ₈	1	C ₄₀	-1	C ₇₂	-1	C ₁₀₄	-1
C ₉	-1	C ₄₁	1	C ₇₃	1	C ₁₀₅	1
C ₁₀	-1	C ₄₂	1	C ₇₄	1	C ₁₀₆	1
C ₁₁	-1	C ₄₃	1	C ₇₅	1	C ₁₀₇	1
C ₁₂	1	C ₄₄	-1	C ₇₆	-1	C ₁₀₈	-1
C ₁₃	1	C ₄₅	-1	C ₇₇	-1	C ₁₀₉	-1
C ₁₄	-1	C ₄₆	1	C ₇₈	1	C ₁₁₀	1
C ₁₅	1	C ₄₇	-1	C ₇₉	-1	C ₁₁₁	-1
C ₁₆	1	C ₄₈	1	C ₈₀	1	C ₁₁₂	1
C ₁₇	-1	C ₄₉	-1	C ₈₁	-1	C ₁₁₃	-1
C ₁₈	-1	C ₅₀	-1	C ₈₂	-1	C ₁₁₄	-1
C ₁₉	-1	C ₅₁	-1	C ₈₃	-1	C ₁₁₅	-1
C ₂₀	1	C ₅₂	1	C ₈₄	1	C ₁₁₆	1
C ₂₁	1	C ₅₃	1	C ₈₅	1	C ₁₁₇	1
C ₂₂	-1	C ₅₄	-1	C ₈₆	-1	C ₁₁₈	-1
C ₂₃	1	C ₅₅	1	C ₈₇	1	C ₁₁₉	1
C ₂₄	1	C ₅₆	1	C ₈₈	-1	C ₁₂₀	1
C ₂₅	-1	C ₅₇	-1	C ₈₉	1	C ₁₂₁	-1
C ₂₆	-1	C ₅₈	-1	C ₉₀	1	C ₁₂₂	-1
C ₂₇	-1	C ₅₉	-1	C ₉₁	1	C ₁₂₃	-1
C ₂₈	1	C ₆₀	1	C ₉₂	-1	C ₁₂₄	1
C ₂₉	1	C ₆₁	1	C ₉₃	-1	C ₁₂₅	1
C ₃₀	-1	C ₆₂	-1	C ₉₄	1	C ₁₂₆	-1
C ₃₁	1	C ₆₃	1	C ₉₅	-1	C ₁₂₇	1

15. (Currently amended) The preamble of claim 11, wherein the time domain sequence is specifieds Sequence Element and Value as follows:

Sequence Element	Value	Sequence Element	Value	Sequence Element	Value	Sequence Element	Value
C ₀	1	C ₃₂	-1	C ₆₄	1	C ₉₆	1
C ₁	-1	C ₃₃	1	C ₆₅	-1	C ₉₇	-1
C ₂	1	C ₃₄	-1	C ₆₆	1	C ₉₈	1
C ₃	1	C ₃₅	-1	C ₆₇	1	C ₉₉	1
C ₄	-1	C ₃₆	1	C ₆₈	-1	C ₁₀₀	-1
C ₅	-1	C ₃₇	1	C ₆₉	-1	C ₁₀₁	-1
C ₆	-1	C ₃₈	1	C ₇₀	-1	C ₁₀₂	-1
C ₇	1	C ₃₉	-1	C ₇₁	1	C ₁₀₃	1
C ₈	-1	C ₄₀	-1	C ₇₂	-1	C ₁₀₄	-1
C ₉	1	C ₄₁	1	C ₇₃	1	C ₁₀₅	1
C ₁₀	-1	C ₄₂	-1	C ₇₄	-1	C ₁₀₆	-1
C ₁₁	-1	C ₄₃	-1	C ₇₅	-1	C ₁₀₇	-1
C ₁₂	1	C ₄₄	1	C ₇₆	1	C ₁₀₈	1
C ₁₃	1	C ₄₅	1	C ₇₇	1	C ₁₀₉	1
C ₁₄	1	C ₄₆	1	C ₇₈	1	C ₁₁₀	1
C ₁₅	-1	C ₄₇	-1	C ₇₉	-1	C ₁₁₁	-1
C ₁₆	-1	C ₄₈	1	C ₈₀	-1	C ₁₁₂	-1
C ₁₇	1	C ₄₉	-1	C ₈₁	1	C ₁₁₃	1
C ₁₈	-1	C ₅₀	1	C ₈₂	-1	C ₁₁₄	-1
C ₁₉	-1	C ₅₁	1	C ₈₃	-1	C ₁₁₅	-1
C ₂₀	1	C ₅₂	-1	C ₈₄	1	C ₁₁₆	1
C ₂₁	1	C ₅₃	-1	C ₈₅	1	C ₁₁₇	1
C ₂₂	1	C ₅₄	-1	C ₈₆	1	C ₁₁₈	1
C ₂₃	-1	C ₅₅	1	C ₈₇	-1	C ₁₁₉	-1
C ₂₄	-1	C ₅₆	-1	C ₈₈	1	C ₁₂₀	1
C ₂₅	1	C ₅₇	1	C ₈₉	-1	C ₁₂₁	-1
C ₂₆	-1	C ₅₈	-1	C ₉₀	1	C ₁₂₂	1
C ₂₇	-1	C ₅₉	-1	C ₉₁	1	C ₁₂₃	1
C ₂₈	1	C ₆₀	1	C ₉₂	-1	C ₁₂₄	-1
C ₂₉	1	C ₆₁	1	C ₉₃	-1	C ₁₂₅	-1
C ₃₀	1	C ₆₂	1	C ₉₄	-1	C ₁₂₆	-1
C ₃₁	-1	C ₆₃	-1	C ₉₅	1	C ₁₂₇	1

16. (Currently amended) The preamble of claim 11, wherein the time domain sequence is specifieds Sequence Element and Value as follows:

Sequence Element	Value	Sequence Element	Value	Sequence Element	Value	Sequence Element	Value
C ₀	1	C ₃₂	-1	C ₆₄	-1	C ₉₆	1
C ₁	1	C ₃₃	-1	C ₆₅	-1	C ₉₇	1
C ₂	-1	C ₃₄	1	C ₆₆	1	C ₉₈	-1
C ₃	1	C ₃₅	-1	C ₆₇	-1	C ₉₉	1
C ₄	1	C ₃₆	-1	C ₆₈	-1	C ₁₀₀	1
C ₅	-1	C ₃₇	1	C ₆₉	1	C ₁₀₁	-1
C ₆	-1	C ₃₈	1	C ₇₀	1	C ₁₀₂	-1
C ₇	-1	C ₃₉	1	C ₇₁	1	C ₁₀₃	-1
C ₈	1	C ₄₀	1	C ₇₂	1	C ₁₀₄	-1
C ₉	1	C ₄₁	1	C ₇₃	1	C ₁₀₅	-1
C ₁₀	-1	C ₄₂	-1	C ₇₄	-1	C ₁₀₆	1
C ₁₁	1	C ₄₃	1	C ₇₅	1	C ₁₀₇	-1
C ₁₂	1	C ₄₄	1	C ₇₆	1	C ₁₀₈	-1
C ₁₃	-1	C ₄₅	-1	C ₇₇	-1	C ₁₀₉	1
C ₁₄	-1	C ₄₆	-1	C ₇₈	-1	C ₁₁₀	1
C ₁₅	-1	C ₄₇	-1	C ₇₉	-1	C ₁₁₁	1
C ₁₆	-1	C ₄₈	-1	C ₈₀	-1	C ₁₁₂	1
C ₁₇	-1	C ₄₉	-1	C ₈₁	-1	C ₁₁₃	1
C ₁₈	1	C ₅₀	1	C ₈₂	1	C ₁₁₄	-1
C ₁₉	-1	C ₅₁	-1	C ₈₃	-1	C ₁₁₅	1
C ₂₀	-1	C ₅₂	-1	C ₈₄	-1	C ₁₁₆	1
C ₂₁	1	C ₅₃	1	C ₈₅	1	C ₁₁₇	-1
C ₂₂	1	C ₅₄	1	C ₈₆	1	C ₁₁₈	-1
C ₂₃	1	C ₅₅	1	C ₈₇	1	C ₁₁₉	-1
C ₂₄	-1	C ₅₆	-1	C ₈₈	-1	C ₁₂₀	1
C ₂₅	-1	C ₅₇	-1	C ₈₉	-1	C ₁₂₁	1
C ₂₆	1	C ₅₈	1	C ₉₀	1	C ₁₂₂	-1
C ₂₇	-1	C ₅₉	-1	C ₉₁	-1	C ₁₂₃	1
C ₂₈	-1	C ₆₀	-1	C ₉₂	-1	C ₁₂₄	1
C ₂₉	1	C ₆₁	1	C ₉₃	1	C ₁₂₅	-1
C ₃₀	1	C ₆₂	1	C ₉₄	1	C ₁₂₆	-1
C ₃₁	1	C ₆₃	1	C ₉₅	1	C ₁₂₇	-1

17. (Currently amended) The preamble of claim 11, wherein the time domain sequence is specifieds Sequence Element and Value as follows:

Sequence Element	Value	Sequence Element	Value	Sequence Element	Value	Sequence Element	Value
C ₀	1	C ₃₂	-1	C ₆₄	1	C ₉₆	-1
C ₁	1	C ₃₃	-1	C ₆₅	1	C ₉₇	-1
C ₂	1	C ₃₄	-1	C ₆₆	1	C ₉₈	-1
C ₃	-1	C ₃₅	1	C ₆₇	-1	C ₉₉	1
C ₄	-1	C ₃₆	1	C ₆₈	-1	C ₁₀₀	1
C ₅	1	C ₃₇	-1	C ₆₉	1	C ₁₀₁	-1
C ₆	-1	C ₃₈	1	C ₇₀	-1	C ₁₀₂	1
C ₇	-1	C ₃₉	1	C ₇₁	-1	C ₁₀₃	1
C ₈	-1	C ₄₀	1	C ₇₂	1	C ₁₀₄	-1
C ₉	-1	C ₄₁	1	C ₇₃	1	C ₁₀₅	-1
C ₁₀	-1	C ₄₂	1	C ₇₄	1	C ₁₀₆	-1
C ₁₁	1	C ₄₃	-1	C ₇₅	-1	C ₁₀₇	1
C ₁₂	1	C ₄₄	-1	C ₇₆	-1	C ₁₀₈	1
C ₁₃	-1	C ₄₅	1	C ₇₇	1	C ₁₀₉	-1
C ₁₄	1	C ₄₆	-1	C ₇₈	-1	C ₁₁₀	1
C ₁₅	1	C ₄₇	-1	C ₇₉	-1	C ₁₁₁	1
C ₁₆	-1	C ₄₈	-1	C ₈₀	-1	C ₁₁₂	-1
C ₁₇	-1	C ₄₉	-1	C ₈₁	-1	C ₁₁₃	-1
C ₁₈	-1	C ₅₀	-1	C ₈₂	-1	C ₁₁₄	-1
C ₁₉	1	C ₅₁	1	C ₈₃	1	C ₁₁₅	1
C ₂₀	1	C ₅₂	1	C ₈₄	1	C ₁₁₆	1
C ₂₁	-1	C ₅₃	-1	C ₈₅	-1	C ₁₁₇	-1
C ₂₂	1	C ₅₄	1	C ₈₆	1	C ₁₁₈	1
C ₂₃	1	C ₅₅	1	C ₈₇	1	C ₁₁₉	1
C ₂₄	1	C ₅₆	-1	C ₈₈	-1	C ₁₂₀	1
C ₂₅	1	C ₅₇	-1	C ₈₉	-1	C ₁₂₁	1
C ₂₆	1	C ₅₈	-1	C ₉₀	-1	C ₁₂₂	1
C ₂₇	-1	C ₅₉	1	C ₉₁	1	C ₁₂₃	-1
C ₂₈	-1	C ₆₀	1	C ₉₂	1	C ₁₂₄	-1
C ₂₉	1	C ₆₁	-1	C ₉₃	-1	C ₁₂₅	1
C ₃₀	-1	C ₆₂	1	C ₉₄	1	C ₁₂₆	-1
C ₃₁	-1	C ₆₃	1	C ₉₅	1	C ₁₂₇	-1

18. (Original) The preamble of claim 9, wherein the third sequence comprises multiple copies of the first sub-sequence combined with a guard band.

19. (Original) The preamble of claim 18, wherein the third sequence comprises multiple copies of the first sub-sequence with a postpended guard band and a prepended sequence.

20. (Original) The preamble of claim 19, wherein the third sequence comprises twenty one (21) copies of the first sub-sequence with a postpended guard band and a prepended sequence.
21. (Original) The preamble of claim 19, wherein the third sequence comprises nine (9) copies of the first sub-sequence with a postpended guard band and a prepended sequence.
22. (Original) The preamble of claim 19, wherein the guard band comprises a sequence of five (5) zero samples.
23. (Original) The preamble of claim 19, wherein the prepended sequence is a zero-padded sequence.
24. (Original) The preamble of claim 19, wherein the prepended sequence is a cyclic prefix.
25. (Original) The preamble of claim 9, wherein the fourth sequence comprises multiple copies of the fifth sequence combined with a guard band.
26. (Original) The preamble of claim 25, wherein the fourth sequence comprises three (3) copies of the fifth sequence with a postpended guard band and a prepended sequence.
27. (Original) The preamble of claim 9, wherein the third sequence comprises multiple concatenated copies of the first sub-sequence, wherein the fourth sequence comprises multiple concatenated copies of the fifth sequence, and wherein the third and fourth sequences are interleaved.
28. (Original) The preamble of claim 27, wherein the preamble is used in a communications system that changes transmit frequency based on a transmit code, and wherein the length of the interleaved third and fourth sequence is an integer multiple of a period of the transmit code.
29. (Original) The preamble of claim 1, wherein the wireless communications system uses orthogonal frequency division multiple access.

30. (Original) The preamble of claim 29, wherein the wireless communications system is a time-frequency interleaved, orthogonal frequency division multiple access communications system.

31. (Original) The preamble of claim 1, wherein the preamble can be transformed prior to transmission.

32. (Original) The preamble of claim 31, wherein the transformation comprises a time-domain filtering.

33. (Original) The preamble of claim 31, wherein the transformation comprises:
a first domain conversion;
processing the domain converted preamble; and
a second domain conversion.

34. (Currently amended) A preamble for a wireless communications system, the preamble comprising:

a sequence wherein the sequence comprises a concatenation of a first set of sub-sequences, with each sub-sequence containing a specified number of zeroes;

wherein the preamble can be transformed prior to transmission and wherein each sub-sequence can differ depending upon its position in the preamble, wherein the transformation comprises:

a first domain conversion;

processing the domain converted preamble; and

a second domain conversion~~The preamble of claim 33~~, wherein the processing comprises magnitude clipping, and wherein the time domain sequence after the second domain conversion is specified as follows:

Sequence Element	Value	Sequence Element	Value	Sequence Element	Value	Sequence Element	Value
C ₀	0.6564	C ₃₂	-0.0844	C ₆₄	-0.2095	C ₉₆	0.4232
C ₁	-1.3671	C ₃₃	1.1974	C ₆₅	1.1640	C ₉₇	-1.2684
C ₂	-0.9958	C ₃₄	1.2261	C ₆₆	1.2334	C ₉₈	-1.8151
C ₃	-1.3981	C ₃₅	1.4401	C ₆₇	1.5338	C ₉₉	-1.4829
C ₄	0.8481	C ₃₆	-0.5988	C ₆₈	-0.8844	C ₁₀₀	1.0302
C ₅	1.0892	C ₃₇	-0.4675	C ₆₉	-0.3857	C ₁₀₁	0.9419
C ₆	-0.8621	C ₃₈	0.8520	C ₇₀	0.7730	C ₁₀₂	-1.1472
C ₇	1.1512	C ₃₉	-0.8922	C ₇₁	-0.9754	C ₁₀₃	1.4858
C ₈	0.9602	C ₄₀	-0.5603	C ₇₂	-0.2315	C ₁₀₄	-0.6794
C ₉	-1.3581	C ₄₁	1.1886	C ₇₃	0.5579	C ₁₀₅	0.9573
C ₁₀	-0.8354	C ₄₂	1.1128	C ₇₄	0.4035	C ₁₀₆	1.0807
C ₁₁	-1.3249	C ₄₃	1.0833	C ₇₅	0.4248	C ₁₀₇	1.1445
C ₁₂	1.0964	C ₄₄	-0.9073	C ₇₆	-0.3359	C ₁₀₈	-1.2312
C ₁₃	1.3334	C ₄₅	-1.6227	C ₇₇	-0.9914	C ₁₀₉	-0.6643
C ₁₄	-0.7378	C ₄₆	1.0013	C ₇₈	0.5975	C ₁₁₀	0.3836
C ₁₅	1.3565	C ₄₇	-1.6067	C ₇₉	-0.8408	C ₁₁₁	-1.1482
C ₁₆	0.9361	C ₄₈	0.3360	C ₈₀	0.3587	C ₁₁₂	-0.0353
C ₁₇	-0.8212	C ₄₉	-1.3136	C ₈₁	-0.9604	C ₁₁₃	-0.6747
C ₁₈	-0.2662	C ₅₀	-1.4448	C ₈₂	-1.0002	C ₁₁₄	-1.1653
C ₁₉	-0.6866	C ₅₁	-1.7238	C ₈₃	-1.1636	C ₁₁₅	-0.8896
C ₂₀	0.8437	C ₅₂	1.0287	C ₈₄	0.9590	C ₁₁₆	0.2414
C ₂₁	1.1237	C ₅₃	0.6100	C ₈₅	0.7137	C ₁₁₇	0.1160
C ₂₂	-0.3265	C ₅₄	-0.9237	C ₈₆	-0.6776	C ₁₁₈	-0.6987
C ₂₃	1.0511	C ₅₅	1.2618	C ₈₇	0.9824	C ₁₁₉	0.4781
C ₂₄	0.7927	C ₅₆	0.5974	C ₈₈	-0.5454	C ₁₂₀	0.1821
C ₂₅	-0.3363	C ₅₇	-1.0976	C ₈₉	1.1022	C ₁₂₁	-1.0672
C ₂₆	-0.1342	C ₅₈	-0.9776	C ₉₀	1.6485	C ₁₂₂	-0.9676
C ₂₇	-0.1546	C ₅₉	-0.9982	C ₉₁	1.3307	C ₁₂₃	-1.2321
C ₂₈	0.6955	C ₆₀	0.8967	C ₉₂	-1.2852	C ₁₂₄	0.5003
C ₂₉	1.0608	C ₆₁	1.7640	C ₉₃	-1.2659	C ₁₂₅	0.7419
C ₃₀	-0.1600	C ₆₂	-1.0211	C ₉₄	0.9435	C ₁₂₆	-0.8934
C ₃₁	0.9442	C ₆₃	1.6913	C ₉₅	-1.6809	C ₁₂₇	0.8391

35. (Original) The preamble of claim 33, wherein the processing comprises magnitude clipping, and wherein the time domain sequence after the second domain conversion is specified as follows:

Sequence Element	Value	Sequence Element	Value	Sequence Element	Value	Sequence Element	Value
C ₀	0.9679	C ₃₂	-1.2905	C ₆₄	1.5280	C ₉₆	0.5193
C ₁	-1.0186	C ₃₃	1.1040	C ₆₅	-0.9193	C ₉₇	-0.3439
C ₂	0.4883	C ₃₄	-1.2408	C ₆₆	1.1246	C ₉₈	0.1428
C ₃	0.5432	C ₃₅	-0.8062	C ₆₇	1.2622	C ₉₉	0.6251
C ₄	-1.4702	C ₃₆	1.5425	C ₆₈	-1.4406	C ₁₀₀	-1.0468
C ₅	-1.4507	C ₃₇	1.0955	C ₆₉	-1.4929	C ₁₀₁	-0.5798
C ₆	-1.1752	C ₃₈	1.4284	C ₇₀	-1.1508	C ₁₀₂	-0.8237
C ₇	-0.0730	C ₃₉	-0.4593	C ₇₁	0.4126	C ₁₀₃	0.2667
C ₈	-1.2445	C ₄₀	-1.0408	C ₇₂	-1.0462	C ₁₀₄	-0.9563
C ₉	0.3143	C ₄₁	1.0542	C ₇₃	0.7232	C ₁₀₅	0.6016
C ₁₀	-1.3951	C ₄₂	-0.4446	C ₇₄	-1.1574	C ₁₀₆	-0.9964
C ₁₁	-0.9694	C ₄₃	-0.7929	C ₇₅	-0.7102	C ₁₀₇	-0.3541
C ₁₂	0.4563	C ₄₄	1.6733	C ₇₆	0.8502	C ₁₀₈	0.3965
C ₁₃	0.3073	C ₄₅	1.7568	C ₇₇	0.6260	C ₁₀₉	0.5201
C ₁₄	0.6408	C ₄₆	1.3273	C ₇₈	0.9530	C ₁₁₀	0.4733
C ₁₅	-0.9798	C ₄₇	-0.2465	C ₇₉	-0.4971	C ₁₁₁	-0.2362
C ₁₆	-1.4116	C ₄₈	1.6850	C ₈₀	-0.8633	C ₁₁₂	-0.6892
C ₁₇	0.6038	C ₄₉	-0.7091	C ₈₁	0.6910	C ₁₁₃	0.4787
C ₁₈	-1.3860	C ₅₀	1.1396	C ₈₂	-0.3639	C ₁₁₄	-0.2605
C ₁₉	-1.0888	C ₅₁	1.5114	C ₈₃	-0.8874	C ₁₁₅	-0.5887
C ₂₀	1.1036	C ₅₂	-1.4343	C ₈₄	1.5311	C ₁₁₆	0.9411
C ₂₁	0.7067	C ₅₃	-1.5005	C ₈₅	1.1546	C ₁₁₇	0.7364
C ₂₂	1.1667	C ₅₄	-1.2572	C ₈₆	1.1935	C ₁₁₈	0.6714
C ₂₃	-1.0225	C ₅₅	0.8274	C ₈₇	-0.2930	C ₁₁₉	-0.1746
C ₂₄	-1.2471	C ₅₆	-1.5140	C ₈₈	1.3285	C ₁₂₀	1.1776
C ₂₅	0.7788	C ₅₇	1.1421	C ₈₉	-0.7231	C ₁₂₁	-0.8803
C ₂₆	-1.2716	C ₅₈	-1.0135	C ₉₀	1.2832	C ₁₂₂	1.2542
C ₂₇	-0.8745	C ₅₉	-1.0657	C ₉₁	0.7878	C ₁₂₃	0.5111
C ₂₈	1.2175	C ₆₀	1.4073	C ₉₂	-0.8095	C ₁₂₄	-0.8209
C ₂₉	0.8419	C ₆₁	1.8196	C ₉₃	-0.7463	C ₁₂₅	-0.8975
C ₃₀	1.2881	C ₆₂	1.1679	C ₉₄	-0.8973	C ₁₂₆	-0.9091
C ₃₁	-0.8210	C ₆₃	-0.4131	C ₉₅	0.5560	C ₁₂₇	0.2562

36. (Original) The preamble of claim 33, wherein the processing comprises magnitude clipping, and wherein the time domain sequence after the second domain conversion is specified as follows:

Sequence Element	Value	Sequence Element	Value	Sequence Element	Value	Sequence Element	Value
C ₀	0.4047	C ₃₂	-0.9671	C ₆₄	-0.7298	C ₉₆	0.2424
C ₁	0.5799	C ₃₃	-0.9819	C ₆₅	-0.9662	C ₉₇	0.5703
C ₂	-0.3407	C ₃₄	0.7980	C ₆₆	0.9694	C ₉₈	-0.6381
C ₃	0.4343	C ₃₅	-0.8158	C ₆₇	-0.8053	C ₉₉	0.7861
C ₄	0.0973	C ₃₆	-0.9188	C ₆₈	-0.9052	C ₁₀₀	0.9175
C ₅	-0.7637	C ₃₇	1.5146	C ₆₉	1.5933	C ₁₀₁	-0.4595
C ₆	-0.6181	C ₃₈	0.8138	C ₇₀	0.8418	C ₁₀₂	-0.2201
C ₇	-0.6539	C ₃₉	1.3773	C ₇₁	1.5363	C ₁₀₃	-0.7755
C ₈	0.3768	C ₄₀	0.2108	C ₇₂	0.3085	C ₁₀₄	-0.2965
C ₉	0.7241	C ₄₁	0.9245	C ₇₃	1.3016	C ₁₀₅	-1.1220
C ₁₀	-1.2095	C ₄₂	-1.2138	C ₇₄	-1.5546	C ₁₀₆	1.7152
C ₁₁	0.6027	C ₄₃	1.1252	C ₇₅	1.5347	C ₁₀₇	-1.2756
C ₁₂	0.4587	C ₄₄	0.9663	C ₇₆	1.0935	C ₁₀₈	-0.7731
C ₁₃	-1.3879	C ₄₅	-0.8418	C ₇₇	-0.8978	C ₁₀₉	1.0724
C ₁₄	-1.0592	C ₄₆	-0.6811	C ₇₈	-0.9712	C ₁₁₀	1.1733
C ₁₅	-1.4052	C ₄₇	-1.3003	C ₇₉	-1.3763	C ₁₁₁	1.4711
C ₁₆	-0.8439	C ₄₈	-0.3397	C ₈₀	-0.6360	C ₁₁₂	0.4881
C ₁₇	-1.5992	C ₄₉	-1.1051	C ₈₁	-1.2947	C ₁₁₃	0.7528
C ₁₈	1.1975	C ₅₀	1.2400	C ₈₂	1.6436	C ₁₁₄	-0.6417
C ₁₉	-1.9525	C ₅₁	-1.3975	C ₈₃	-1.6564	C ₁₁₅	1.0363
C ₂₀	-1.5141	C ₅₂	-0.7467	C ₈₄	-1.1981	C ₁₁₆	0.8002
C ₂₁	0.7219	C ₅₃	0.2706	C ₈₅	0.8719	C ₁₁₇	-0.0077
C ₂₂	0.6982	C ₅₄	0.7294	C ₈₆	0.9992	C ₁₁₈	-0.2336
C ₂₃	1.2924	C ₅₅	0.7444	C ₈₇	1.4872	C ₁₁₉	-0.4653
C ₂₄	-0.9460	C ₅₆	-0.3970	C ₈₈	-0.4586	C ₁₂₀	0.6862
C ₂₅	-1.2407	C ₅₇	-1.0718	C ₈₉	-0.8404	C ₁₂₁	1.2716
C ₂₆	0.4572	C ₅₈	0.6646	C ₉₀	0.6982	C ₁₂₂	-0.8880
C ₂₇	-1.2151	C ₅₉	-1.1037	C ₉₁	-0.7959	C ₁₂₃	1.4011
C ₂₈	-0.9869	C ₆₀	-0.5716	C ₉₂	-0.5692	C ₁₂₄	0.9531
C ₂₉	1.2792	C ₆₁	0.9001	C ₉₃	1.3528	C ₁₂₅	-1.1210
C ₃₀	0.6882	C ₆₂	0.7317	C ₉₄	0.9536	C ₁₂₆	-0.9489
C ₃₁	1.2586	C ₆₃	0.9846	C ₉₅	1.1784	C ₁₂₇	-1.2566

37. (Original) The preamble of claim 33, wherein the processing comprises magnitude clipping, and wherein the time domain sequence after the second domain conversion is specified as follows:

Sequence Element	Value	Sequence Element	Value	Sequence Element	Value	Sequence Element	Value
C ₀	1.1549	C ₃₂	-1.2385	C ₆₄	1.3095	C ₉₆	-1.0094
C ₁	1.0079	C ₃₃	-0.7883	C ₆₅	0.6675	C ₉₇	-0.7598
C ₂	0.7356	C ₃₄	-0.7954	C ₆₆	1.2587	C ₉₈	-1.0786
C ₃	-0.7434	C ₃₅	1.0874	C ₆₇	-0.9993	C ₉₉	0.6699
C ₄	-1.3930	C ₃₆	1.1491	C ₆₈	-1.0052	C ₁₀₀	0.9813
C ₅	1.2818	C ₃₇	-1.4780	C ₆₉	0.6601	C ₁₀₁	-0.5563
C ₆	-1.1033	C ₃₈	0.8870	C ₇₀	-1.0228	C ₁₀₂	1.0548
C ₇	-0.2523	C ₃₉	0.4694	C ₇₁	-0.7489	C ₁₀₃	0.8925
C ₈	-0.7905	C ₄₀	1.5066	C ₇₂	0.5086	C ₁₀₄	-1.3656
C ₉	-0.4261	C ₄₁	1.1266	C ₇₃	0.1563	C ₁₀₅	-0.8472
C ₁₀	-0.9390	C ₄₂	0.9935	C ₇₄	0.0673	C ₁₀₆	-1.3110
C ₁₁	0.4345	C ₄₃	-1.2462	C ₇₅	-0.8375	C ₁₀₇	1.1897
C ₁₂	0.4433	C ₄₄	-1.7869	C ₇₆	-1.0746	C ₁₀₈	1.5127
C ₁₃	-0.3076	C ₄₅	1.7462	C ₇₇	0.4454	C ₁₀₉	-0.7474
C ₁₄	0.5644	C ₄₆	-1.4881	C ₇₈	-0.7831	C ₁₁₀	1.4678
C ₁₅	0.2571	C ₄₇	-0.4090	C ₇₉	-0.3623	C ₁₁₁	1.0295
C ₁₆	-1.0030	C ₄₈	-1.4694	C ₈₀	-1.3658	C ₁₁₂	-0.9210
C ₁₇	-0.7820	C ₄₉	-0.7923	C ₈₁	-1.0854	C ₁₁₃	-0.4784
C ₁₈	-0.4064	C ₅₀	-1.4607	C ₈₂	-1.4923	C ₁₁₄	-0.5022
C ₁₉	0.9034	C ₅₁	0.9113	C ₈₃	0.4233	C ₁₁₅	1.2153
C ₂₀	1.5406	C ₅₂	0.8454	C ₈₄	0.6741	C ₁₁₆	1.5783
C ₂₁	-1.4613	C ₅₃	-0.8866	C ₈₅	-1.0157	C ₁₁₇	-0.7718
C ₂₂	1.2745	C ₅₄	0.8852	C ₈₆	0.8304	C ₁₁₈	1.2384
C ₂₃	0.3715	C ₅₅	0.4918	C ₈₇	0.4878	C ₁₁₉	0.6695
C ₂₄	1.8134	C ₅₆	-0.6096	C ₈₈	-1.4992	C ₁₂₀	0.8821
C ₂₅	0.9438	C ₅₇	-0.4321	C ₈₉	-1.1884	C ₁₂₁	0.7807
C ₂₆	1.3130	C ₅₈	-0.1327	C ₉₀	-1.4008	C ₁₂₂	1.0537
C ₂₇	-1.3070	C ₅₉	0.4953	C ₉₁	0.7795	C ₁₂₃	-0.0791
C ₂₈	-1.3462	C ₆₀	0.9702	C ₉₂	1.2926	C ₁₂₄	-0.2845
C ₂₉	1.6868	C ₆₁	-0.8667	C ₉₃	-1.2049	C ₁₂₅	0.5790
C ₃₀	-1.2153	C ₆₂	0.6803	C ₉₄	1.2934	C ₁₂₆	-0.4664
C ₃₁	-0.6778	C ₆₃	-0.0244	C ₉₅	0.8123	C ₁₂₇	-0.1097

38. (Original) The preamble of claim 31, wherein the preamble can be transformed prior to use and stored in a memory.

39-57. (Canceled)